METHOD FOR MANAGING INTERRUPTIONS TO A NETWORK USER

FIELD OF THE INVENTION

[0001]   The invention relates generally to a method for managing interruptions to a network user. In particular, the invention relates to a method of controlling access to the network user according to user specified information and dynamic criteria.

BACKGROUND

[0002]   The electronic workplace of today is filled with many conveniences to allow employees to collaborate with each other. Some workplace environments allow employees to have ready access to each other through real time communications such as chat and instant messaging. In some instances a chat is initiated by selecting a sender, recipient or group of individuals identified in an e-mail. Alternatively, the chat can be initiated by selecting an author, individual or group associated with a shared document. Thus users can quickly communicate with other employees to pose questions to topics of common interest.

[0003]   Under many circumstances chat can increase employee efficiency. However, in large organizations where employees have broad access to other employees, an employee can experience a large volume of chats, particularly if the employee possesses unique skills or expertise recognized by a large number of other employees. These chats, or interruptions, can hinder the employee's ability to perform their required workplace tasks or projects. If the employee is busy, the interruptions can be ignored. However, some of the interruptions can relate to high priority matters that the employee needs to address.

[0004]   What is needed is a method for managing interruptions to the user. The method

should prevent general work disruptions of the user without obstructing access to important

interruptions. The present invention satisfies this need and provides additional advantages.

SUMMARY OF THE INVENTION

[0005]   In one aspect, the invention features a method for managing interruptions to a

network user. The interruptions are generated by senders on a network and the network user has

a permanent reception list. A temporary reception list is modified in response to a retrospective

activity or a prospective activity. An interruption is received from one of the senders and

presented to the network user if the permanent reception list or the temporary reception list

includes an entry associated with the sender of the interruption.

[0006]   In one embodiment, an urgency value associated with the interruption is received and

compared with an interruption threshold value defined by the network user. The interruption is

presented to the network user if the urgency value exceeds the threshold value. In another

embodiment, a user status request is received from one of the senders. If at least one of the

permanent reception list and the temporary reception list includes an entry associated with the

sender of the user status request, a customized status message is generated. If the permanent

reception list and the temporary reception list do not include an entry associated with the sender

of the user status request, a generic status message is generated.

[0007]   In another aspect, the invention features a computer program product for use with a

computer system. The computer program product includes a computer useable medium having

embodied therein program code. The program code includes program code for modifying a

temporary reception list of a network user in response to a retrospective activity or a prospective

activity, program code for receiving an interruption from a sender on the network, and program code for presenting the interruption to the network user if the temporary reception list or a permanent reception list of the network user includes an entry associated with the sender.

[0008] In yet another aspect, the invention features a computer data signal embodied in a carrier wave for use with a computer system having a display and capable of generating a user interface through which a user may interact with the computer system. The computer data signal includes program code for modifying a temporary reception list of a network user in response to a retrospective activity or a prospective activity, program code for receiving an interruption from a sender on the network, and program code for presenting the interruption to the network user if the temporary reception list or a permanent reception list of the network user includes an entry associated with the sender.

[0009] In still another aspect, the invention features a computing system including a display screen, a user input device, and a processor. The processor executes a network user communications program to manage interruptions to a network user. The interruptions are generated by senders on a network. Each interruption is presented to the network user on the display screen if a permanent reception list or a temporary reception list includes an entry associated with the sender of the interruption.

[00010] In still another aspect, the invention features an apparatus for managing interruptions to a network user. The interruptions are generated by senders on a network and the network user has a permanent reception list. The apparatus includes means for modifying a temporary reception list in response to a retrospective activity or a prospective activity, means for receiving an interruption from one of the senders on the network, and means for presenting the interruption

to the network user if the permanent reception list or the temporary reception list includes an entry associated with the sender of the interruption.

[00011] In one embodiment, the apparatus also includes means for receiving an urgency value associated with the interruption, means for comparing the urgency value with an interruption threshold value defined by the network user, and means for presenting the interruption to the network user if the urgency value exceeds the interruption threshold value. In another embodiment, the apparatus also includes means for receiving a user status request from one of the senders, means for generating a generic status message if the permanent reception list and the temporary reception list do not include an entry associated with the sender of the user status request, and means for generating a customized status message if the permanent reception list or the temporary reception list includes an entry associated with the sender of the user status request.

BRIEF DESCRIPTION OF THE DRAWINGS

[00012] The above and further advantages of this invention may be better understood by referring to the following description in conjunction with the accompanying drawings, in which like numerals indicate like structural elements and features in the various figures. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the invention.

[00013] FIG. 1 illustrates a networked communication environment in which an embodiment of a method for managing interruptions to a network user according to the invention can be implemented.

[00018]   Referring to FIG. 1, a networked communication environment 10 includes users 14'

and 14'' (generally 14) communicating with each other over a network 18. Each user 14

accesses a local computer having a display screen and providing a user interface, including a user

input device, through which the user 14 interacts with the local computer and other computers on

the network 18. The network 18 can be implemented as a local area network (LAN), an intranet,

the Internet or other form of network providing near real time communications between users 14.

A user 14 can interrupt one or more other users 14 by proposing a chat. Similarly, a user 14 can

interrupt other users 14 by attempting to add the other users to an ongoing chat session.

Hereafter the term "sender" designates a user 14' that generates the interruption. If no controls

are implemented, a user 14'' can experience an overwhelming volume of interruptions.

Consequently, the user 14'' may not be able to respond to all of the interruptions. Moreover, the

user 14'' may not be able to perform other work related tasks.

[00019]   To manage interruptions from senders 14' on the network 18, a user 14 can maintain

reception lists which identify individuals or groups of people from whom the user 14 is willing to

accept chats and other interruptions. For example, chats proposed by senders 14' whose names

are included in the reception lists receive preferential treatment. Preferential treatment may

include immediate access to the user 14'' so that the chat is allowed to interrupt the user 14''.

Additionally, senders 14' identified on the reception lists can receive other advantages described

in more detail below, such as an increase in priority over interruptions from other senders 14'

and special awareness information in response to a user status request.

[00020]   A reception list can be permanent or temporary. A permanent reception list is

constructed using static or slowly varying information. Permanent reception lists can be

populated by the user 14 according to individual preferences as is known in the art. For

example, a permanent reception list can be populated according to an organizational list in which

team members and management personnel are included but other members of the organization

are absent. The user 14 can also include personal entries such as family members, friends and

other workplace contacts that are not included as team members or management. Although

described as permanent, it is to be understood that the permanent reception list can be updated on

an occasional basis, such as when an organizational list is revised.

[00021]   A temporary reception list is constructed according to users associated with

retrospective and prospective activities. Retrospective activities include recently received

asynchronous communications (i.e., communications without simultaneous participation between

two or more users) via e-mail and other media, completed tasks and "to do" items, and the like.

Prospective activities include imminent events such as scheduled meetings and items on "to do"

lists with near term completion dates.

[00022]   Users 14 are included and removed from temporary reception lists according to

temporal criteria. FIG. 2 presents a flowchart representation of an embodiment of a method 100

for modifying a temporary reception list in accordance with the invention. The user's e-mail

inbox and sent box can be examined to determine (step 104) addressees and senders included in

e-mail received or sent within an established time interval (e.g., two days).   Addressees and

senders for e-mails within the acceptable time window are added (step 108) to the temporary

reception list. Similarly, the user's calendar and "to do" list can be examined to determine (step 112) meetings scheduled within a definite time period (e.g., the next week). The attendees for these meetings and users associated with the "to do" list are added (step 116) to the temporary reception list.

[00023]   Similarly, the temporary reception list can be automatically updated to remove aged entries. If it is determined (step 120) that the age of an e-mail exceeds the established time interval, the associated addressees are removed (step 124) from the reception list if there are no other retrospective or prospective activities that qualify them for inclusion. Similarly, when it is determined (step 128) that users associated with "to do" lists and meetings that are more than a predetermined time beyond the effective dates, the associated users are dropped (step 132) from the temporary reception lists unless they are included in other qualifying activities.

[00024]   The time windows for retrospective activities and prospective activities are user defined and can be changed according to the workload or other preference of the user. The entry of users into the temporary reception list is automatic. Modification of the temporary reception list occurs regularly, such as once an hour or on a daily basis. Optionally, a user can initiate an update of the temporary reception list without waiting for the next modification cycle.

[00025]   Various levels of urgency can be associated with an interruption generated by a sender. For example, urgency values of "normal" and "moderate" can be assigned for chat requests of low priority and moderate importance, respectively. Urgency values defined as "urgent" can be reserved for the most critical chat requests. The urgency value is compared with the current value of an interruption threshold defined by the user. During times of heavy

workload or imminent deadlines, the user may set the interruption threshold value to urgent,

causing any interruption request with lower urgency values to be deferred to another medium,

such as e-mail. In contrast, under less critical working conditions, the user may set the

interruption threshold value to moderate, allowing both urgent and moderate interruptions to

occur. FIG. 3 summarizes the processing of interruption request for both listed and unlisted

senders according to the user's reception lists for three urgency values.

[00026]   In one embodiment, senders that are listed in a user's reception list receive an

automatic increase in the urgency value of their interruption request during the evaluation of that

request. For example, a moderate request from a sender included in the user's reception list is

treated the same as an urgent request from an unlisted sender as shown in FIG. 4. Similarly, a

normal request from a listed sender is treated equivalent to a moderate request from an unlisted

sender.

[00027]   Many chat and messaging systems provide abbreviated status information to senders

of chat requests. The abbreviated status information can be one line of text such as "I AM

ACTIVE" or "OUT UNTIL 3:30 PM – SEND CLIENT INFO TO SEAN UNTIL THEN." Such

status information is limited to a single message provided to all status requestors. Thus a user

has to consider the potential recipients of the status message when generating the content of the

message. The present invention provides for conditional status information to be provided to

users. According to one embodiment, the user's reception lists are examined to determine if the

sender of an interruption request is included. If the sender is not listed, a generic, non-personal

status reply is returned to the sender. However, if the sender is included in at least one of the

reception lists, a more detailed message is provided to the sender. For example, an unlisted sender receives the message "OUT UNTIL 10 AM" while a listed sender receives the message "OUT UNTIL 10 AM – AT THE DOCTOR, CALL JOHN FOR CLIENT REPORTS." Thus personal or work related status information can be made available only to a limited set of status requestors.

[00028]   Interruption requests can be queued, rather than immediately providing them to the user. The user can disable queuing to allow immediate interruptions or enable complete queuing so that all interruptions are queued without notifying the user. In an embodiment of a method for managing interruptions to a user according to the invention, the user can elect to receive an alert of an interruption request. In one embodiment, the alert can include expanded information about the request, such as identification of the sender and at least a portion (e.g., the first line) of an initial message associated with the request. For example, the alert can include text showing the name of the sender and an urgency value associated with the request. In a second embodiment, the alert can be generic, and the user can consult a constantly-updated table of interruption requests to learn more about the interruption and its requester.

[00029]   The user can interrogate the request by selecting (i.e., "clicking") the alert text to determine more (i.e., expanded) information about the sender. If the request is associated with multiple senders, such as request for a multi-party chat, all of the sender names are provided to the user. In one embodiment the request can be previewed to show the entirety of the initial message, including historical message information entered before the current request. The additional information can assist the user in determining whether to respond immediately to the

request, for example, by allowing a chat to open. The user has the option of rejecting the interruption without the need for further action. Alternatively, the user can elect to defer the interruption to a lower urgency medium such as e-mail. In another option, the user can propose an alternate medium for response, for example, by receiving the request and returning a request for the sender to telephone the user. In one embodiment the user can respond by issuing a wait message indicating that the user will respond (i.e., chat) after expiration of a time selected by the user.

[00030] While the invention has been shown and described with reference to specific embodiments, it should be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

[00031] What is claimed is: